

# Notice of Allowability

Application No.

10/826,015

Examiner

Luis F. Garcia

Applicant(s)

JANG ET AL.

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to March 20, 2007.
2. ☒ The allowed claim(s) is/are 1,3-4 and 6-9, renumbered 1-7 respectively.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
**KENNETH VANDERPUYE**  
**SUPERVISORY PATENT EXAMINER**

**DETAILED ACTION**

1. Claims 1,3-4 and 6-9 are pending instant application.

**EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in a telephone interview with Applicant's Attorney Eric Hyman on March 30, 2007.

The application has been amended as follows:

**Regarding claim 6**, in ln2 wherein "a series of light beams" is replaced by: "a light beam".

**The following version of claim 9 replaces the present version of the claim in the instant application entirely.**

**9.** ~~A computer-readable recording medium for storing a program implemented to perform the respective steps included in the bias voltage stabilizing method of claim 6 encoded with instructions which when executed by a processor perform the following steps:~~

a) detecting an output signal of the external modulator, to which the bias voltage to be stabilized is applied;

b) detecting a drive clock signal applied to the external modulator;

c) outputting a mean output value of products obtained by multiplication of the output signal and the clock signal; and

d) adjusting the bias voltage so that the mean output value becomes "0"; wherein the steps a) to d) are repeatedly performed,

wherein the step d) comprises the steps of:

d1) initializing an optimal bias ascertaining variable "start" to "0";

d2) determining whether the mean output value of the products obtained by the multiplication of the output signal and the clock signal is "0";

d3) determining whether the optimal bias ascertaining variable "start" is "0";

d4) increasing or decreasing the bias voltage by  $\Delta V$  and then returning to step d2) if the mean output value is "0" and the optimal bias ascertaining variable "start" is "0";

d5) changing the optimal bias ascertaining variable "start" to "1" if the mean output value is not "0" and the optimal bias ascertaining variable "start" is "0";

d6) increasing or decreasing the bias voltage by  $\Delta V$  according to whether the mean output value is a negative or positive value, and returning to step d2), if the mean output value is not "0" and the optimal bias ascertaining variable "start" is not "0", or after step d5) has been performed; and

d7) maintaining a current bias voltage if the mean output value is "0" and the optimal bias ascertaining variable "start" is not "0".

***Allowable Subject Matter***

4. Claims 1, 3-4 and 6-9 are allowed.

5. The following is an examiner's statement of reasons for allowance:

**As to independent claim 1**, the prior art references of Puleo (US 6,778,310), King (US 6,473,219), Masuda et al (6,510,255), Yang et al (US 6,317,247), Imai et al (US 2005/0249444), Hamano et al (US 5,074,631), Kajiya et al (US 7,092,643) and Ooi et al (US 6,362,913) does not fairly teach or suggest:

... wherein said control means includes:

means for initializing an optimal bias ascertaining variable "start" to "0";

means for determining whether the mean output value of the products obtained by the multiplying means is "0";

means for determining whether the optimal bias ascertaining variable "start" is "0";

means for increasing or decreasing the bias voltage by  $\Delta V$ ;

means for changing the optimal bias ascertaining variable "start" to "1" if the mean output value is not "0" and the optimal bias ascertaining variable "start" is "0";

means for increasing or decreasing the bias voltage by  $\Delta V$  according to whether the mean output value is a negative or positive value; and

means for maintaining a current bias voltage if the mean output value is "0" and the optimal bias ascertaining variable "start" is not "0".

**As to independent claim 6**, the prior art references of Puleo (US 6,778,310), King (US 6,473,219), Masuda et al (6,510,255), Yang et al (US 6,317,247), Imai et al (US 2005/0249444), Hamano et al (US 5,074,631), Kajiya et al (US 7,092,643) and Ooi et al (US 6,362,913) does not fairly teach or suggest:

...wherein the step d) comprises the steps of:

- d1) initializing an optimal bias ascertaining variable "start" to "0";
- d2) determining whether the mean output value of the products obtained by the multiplication of the output signal and the clock signal is "0";
- d3) determining whether the optimal bias ascertaining variable "start" is "0";
- d4) increasing or decreasing the bias voltage by AV and then returning to step d2) if the mean output value is "0" and the optimal bias ascertaining variable "start" is "0";
- d5) changing the optimal bias ascertaining variable "start" to "1" if the mean output value is not "0" and the optimal bias ascertaining variable "start" is "0";
- d6) increasing or decreasing the bias voltage by AV according to whether the mean output value is a negative or positive value, and returning to step d2), if the mean output value is not "0" and the optimal bias ascertaining variable "start" is not "0", or after step d5) has been performed; and
- d7) maintaining a current bias voltage if the mean output value is "0" and the optimal bias ascertaining variable "start" is not "0".

**As to independent claim 9**, the prior art references of Puleo (US 6,778,310), King (US 6,473,219), Masuda et al (6,510,255), Yang et al (US 6,317,247), Imai et al (US 2005/0249444), Hamano et al (US 5,074,631), Kajiya et al (US 7,092,643) and Ooi et al (US 6,362,913) does not fairly teach or suggest:

... wherein the step d) comprises the steps of:

- d1) initializing an optimal bias ascertaining variable "start" to "0";

d2) determining whether the mean output value of the products obtained by the multiplication of the output signal and the clock signal is "0";

d3) determining whether the optimal bias ascertaining variable "start" is "0";

d4) increasing or decreasing the bias voltage by AV and then returning to step d2) if the mean output value is "0" and the optimal bias ascertaining variable "start" is "0";

d5) changing the optimal bias ascertaining variable "start" to "1" if the mean output value is not "0" and the optimal bias ascertaining variable "start" is "0";

d6) increasing or decreasing the bias voltage by AV according to whether the mean output value is a negative or positive value, and returning to step d2), if the mean output value is not "0" and the optimal bias ascertaining variable "start" is not "0", or after step d5) has been performed; and

d7) maintaining a current bias voltage if the mean output value is "0" and the optimal bias ascertaining variable "start" is not "0".

6. Claims 1, 3-4 and 6-9 renumbered respectively as claims 1-7, and the claim dependency is renumbered accordingly.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luis F. Garcia whose telephone number is (571)272-7975. The examiner can normally be reached on 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken N. Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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